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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/895,915	06/29/2001	John W. Glotzbach	TI-31321	9505
23494	7590	09/22/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			VIEAUX, GARY	
			ART UNIT	PAPER NUMBER
			2612	H
DATE MAILED: 09/22/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/895,915	GLOTZBACH ET AL.
Examiner	Art Unit	
Gary C. Vieux	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 29 June 2001.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 3 is/are allowed.
- 6) Claim(s) 1,2 and 4 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 01 October 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly
5 indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

10 A person shall be entitled to a patent unless –

Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Adams, Jr. et al. (US #5,652,621.)

Regarding claim 1, Adams teaches a method of interpolation of a color-array, comprising:

15 (a) interpolating each of a plurality of colors from a color-filtered array (fig. 2);

 (b) approximating the portion of a first of said interpolated colors from step (a) which is in a frequency band missing from a second of said interpolated colors from step (a)(fig. 2, 4 and 6; col. 4 lines 18-36); and

 (c) combining the result of step (b) with said second of said interpolated colors

20 (fig. 4 and 6.)

Regarding claim 2, Adams teaches all the limitations of claim 2 (see the 102(b) rejection to claim 1 supra), including wherein:

- (a) said color-filter array has a Bayer pattern (col. 2 lines 59-66); and
 - (b) said first of said interpolated colors is green (fig. 4.)

Regarding claim 4, teaches a camera, comprising:

- 5 (a) a color-filtered array sensor (fig. 1 indicator 12); and

 (b) a color-filtered array interpolator coupled to said sensor (fig. 1 indicator 22),
 said interpolator including

 (i) a first interpolation filter for a first color (col. 4 lines 18-20),

 (ii) a second interpolation filter for a second color (col. 4 lines 22-25), and

10 (iii) a third filter approximating the frequency region difference between
 said first interpolation filter and said second interpolation (col. 4 lines 25-
 28), said third filter for input said first color and for output coupled to the
 output of said second interpolation filter (col. 5 lines 17-20.)

15 ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

25 A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

- 5 **Claim 1** is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,791,609. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of the application and claim 1 of the patent mutually include methods of interpolation of color-filtered arrays, comprising the steps of interpolating 10 each of a plurality of colors from the array, approximating the portions of a first of said interpolated colors missing from a second of said interpolated colors and combining the results.

- 15 **Claim 2** is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,791,609. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 2 of the application and claim 1 of the patent mutually include interpolation of Bayer patterns, and well as include green as the first of the colors interpolated.

- 20 **Claim 4** is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,791,609. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 4 of the application and claim 3 of the patent mutually include interpolating first and second colors, followed by combining correction term based on the difference between the colors.

Since the inventions claimed in application claims 1, 2 and 4 are a broader recitation of the same invention as claimed in claim 1 of U.S. Patent No. 6,791,609, a double patenting rejection is necessary so as to prevent the unjustified time-wise extension of the monopoly granted by a patent. Additionally, a terminal disclaimer is

5 necessary so as to insure that both patents (if one was to be granted on the present application) are commonly owned throughout their lifetimes.

Allowable Subject Matter

Claim 3 is allowed, as the prior art is not found to disclose or fairly suggest

10 similar interpolation normalization of the respective filter transfer functions.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

15 Adams, Jr. et al. (US #5,506,619) and Hamilton, Jr et al. (US #5,629,724) disclose directional processing in color-filter array interpolation, in which the green color component is interpolated, followed by interpolation of the missing red and blue color components, afterward a correction term based on the interpolated green is added to the red and blue, respectively.

20 Tsai et al. (US #5,172,227) discloses color interpolation for a single sensor image system, interpolating both colors and color differences.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary C. Vieux whose telephone number is 703-305-9573. The examiner can normally be reached on Monday - Friday, 8:00am - 4:00pm.

5 If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for 10 published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Gary C. Vieux
Examiner
Art Unit 2612

Gcv2



NGOC-YIEN VU
PRIMARY EXAMINER